Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of this Reply, claims 1-30 are pending in the application, with 1, 22, and 30 being the independent claims. Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Allowable Subject Matter

In the Office Action, claims 7-9, 11, and 12 are objected to as being dependent upon a rejected base claim, but the Examiner indicates that these claims would be allowable if rewritten in independent form to include the limitations of the independent and intervening claims. (Paper No. 4, page 17). Applicants appreciate the Examiner's conditional allowance of these claims. However as discussed in greater detail below, Applicants consider the Examiner's rejections to independent claim 1 to be moot and/or invalid in light of the remarks herein. However, Applicants reserve the right to rewrite claims 7-9, 11, and 12 in independent form in a future amendment.

Rejections under 35 U.S.C. § 102

In the Office Action, the Examiner rejects claims 1-6, 10, and 13 under 35 U.S.C. § 102(e), as allegedly being anticipated by U.S. Patent 6,567,408 to Li *et al.* (herein referred to as "Li"). (Paper No. 4, page 2). Applicants respectfully traverse.

With respect to independent claim 1, Li does not disclose each and every

element, limitation, and/or feature of Applicants' invention. For the Examiner's

convenience independent claim 1 is reproduced below:

> 1.   (original) A method for *creating and/or modifying* a
> dynamically update-able, searchable packet classification *databank*,
> comprising the steps of:
>
> receiving a collection of packet classification rules, each
> packet classification rule being represented as a plurality of binary
> locations;
>
> selecting an index key based on a common location among
> said packet classification rules at a first level, such as to enable
> partitioning of said collection into two or more siblings at a second level,
> wherein the *binary value of said common location* represents a feature
> whereby the composition of each sibling contains packet classification
> rules possessing a common feature; and
>
> selecting an index key based on a second common location
> among said packet classification rules at said second level, such as to
> enable partitioning of at least one of said two or more siblings at said
> second level into two or more siblings at a third level.

Li does not disclose, for example, "selecting an index key based on a

common location among said packet classification rules at a first level, such as to

enable partitioning of said collection into two or more siblings at a second level,

wherein the *binary value of said common location* represents a feature whereby the

composition of each sibling contains packet classification rules possessing a

common feature."

In fact, Li does not disclose any type of method or system for "creating

and/or modifying a ... packet classification databank." On the contrary, Li

describes a "method for classifying data packets" (Li, col. 3, lines 63-64) by

"reading a signature comprising values for a plurality of parameters of an incoming

data packet and identifying one of the subsequent tables" (Li, col. 4, lines 8-10).

None of Li's parameters (e.g., an input port, source IP address, destination IP address, etc.) has a "binary value" (i.e., represented as being "1" or "0"). It should be noted that Li's source and destination parameters can be converted to a binary form containing multiple binary values (see e.g., Li, col. 8, lines 55-61); however neither parameter is represented by a single binary "value" as recited in Applicants' invention and supported by Applicants' specification (see Paragraphs 0043, 0044, and 0052-0054, and FIG. 3).

Claims 2-6, 10, and 13 depend from independent claim 1, and therefore, are patentable for at least the reasons provided above, in addition to the features recited therein. Applicants respectfully request reconsideration and withdrawal of the rejection of the above claims, and allowance thereof.

Rejections under 35 U.S.C. § 103

In the Office Action, the Examiner rejects claims 14-30 under 35 U.S.C. § 103 as allegedly being unpatentable over a combination of the following documents:

a) Li (discussed above);

b) U.S. Patent 6,600,744 to Carr *et al.* (herein referred to as "Carr"); and

c) U.S. Patent Application Publication 2002/0089937 to Venkatachary *et al.* (herein referred to as "Venkatachary").

Each of the Examiner's combinations is discussed separately below.

a.   *Li and Carr rejections*

In the Office Action, the Examiner rejects claims 14, 18-20, and 22-30

under 35 U.S.C. § 103 as allegedly being unpatentable over Li in view of Carr.

(Paper No. 4, page 5). Applicants respectfully traverse.

Li and Carr, taken alone or in combination, do not teach or suggest each and

every element, limitation, and/or feature of Applicants' invention. For the

Examiner's convenience, independent claims 22 and 30 are reproduced below:

> 22. (original) A packet classification system, comprising:
>
> a first memory for receiving a collection of packet classification rules, wherein each packet classification rule is represented as a plurality of binary locations; and
>
> a mask constructor for selecting one or more index keys,
>
> wherein each *index key is based on a common location* among said packet classification rules residing at a level, and enables partitioning of said packet classification rules into two or more siblings at another level, and
>
> wherein said mask constructor continues to select index keys to repetitively partition each sibling at a respective level into two or more siblings at a lower level until reaching a partition threshold.

> 30. (original) A computer program product comprising a computer useable medium having computer readable program code means embedded in said medium for causing an application program to execute on a computer used to classify packet flows, said computer readable program code means comprising:
>
> a first computer readable program code means for causing the computer to select one or more index keys,
>
> wherein said first computer readable program code means selects each index key such that each *index key is based on a common location* among a set of packet classification rules residing at a level, and enables partitioning of said set into two or more siblings at another level, and
>
> wherein said first computer readable program code means continues to select index keys to repetitively partition each sibling at a respective level into two or more siblings at a lower level until reaching a partition threshold; and

- 13 -

MERUGU *et al.*
Appl. No. 10/050,762

> a second computer readable program code means for causing
> the computer to assemble said one or more index keys into a query key.

First, claims 14 and 18-20 depend from independent claim 1, and therefore, are patentable over Li for at least the reasons provided above, in addition to the features recited therein. Specifically as discussed above with respect to claim 1, Li does not teach or suggest, for example, "selecting an index key based on a common location among said packet classification rules at a first level, such as to enable partitioning of said collection into two or more siblings at a second level, wherein the ***binary value of said common location*** represents a feature whereby the composition of each sibling contains packet classification rules possessing a common feature."

With respect to independent claim 22, the Examiner concedes that Li does not teach or suggest "a mask constructor for selecting one or more index keys" (Paper No. 4, page 8). Additionally with respect to independent claim 30, the Examiner concedes that Li does not teach or suggest "a first computer readable program code means for causing the computer to select one or more index keys" (Paper No. 4, page 11).

Carr does not cure the deficiencies of Li, since Carr, likewise, does not teach or suggest, for example:

> "selecting an index key based on a common location among said
> packet classification rules at a first level, such as to enable
> partitioning of said collection into two or more siblings at a second
> level, wherein the ***binary value of said common location***
> represents a feature whereby the composition of each sibling
> contains packet classification rules possessing a common feature",

as recited in independent claim 1, or:

- 14 -

MERUGU *et al.*
Appl. No. 10/050,762

"wherein each *index key is based on a common location* among said packet classification rules residing at a level, and enables partitioning of said packet classification rules into two or more siblings at another level",

as recited in independent claim 22, or:

"wherein said first computer readable program code means selects each index key such that each *index key is based on a common location* among a set of packet classification rules residing at a level, and enables partitioning of said set into two or more siblings at another level",

as recited in independent claim 30.

Carr, like Li, describes a "method and apparatus for packet classification" (Carr, col. 2, lines 31-32), wherein a "comparison block also receives a key that includes the relevant information for classifying the packet" (Carr, col. 2, lines 36-38). Carr's key does not have a "binary value" (i.e., represented as being "1" or "0"). Carr's key contains "various fields" (see Carr, col. 4, lines 4-6) represented by multiple bits or locations (see Carr, col. 7, lines 28-40). Carr's key is not represented by a single binary "value" and/or a common "location" as recited in Applicants' invention and supported by Applicants' specification (see Paragraphs 0043, 0044, and 0052-0054, and FIG. 3).

Therefore, Li and/or Carr does not teach or suggest Applicant's invention as recited in independent claims 1, 22, and 30. Dependent claims 14 and 18-20 depend from independent claim 1, and dependent claims 23-29 depend from claim 22. Therefore, these claims are patentable over Li and Carr for at least the reasons stated above, in addition to the features recited therein. As such, Applicants

respectfully request reconsideration and withdrawal of the rejection of the above claims, and allowance thereof.

b.   Li, Carr, and Venkatachary rejections

In the Office Action, the Examiner rejects claims 15-17 and 21 under 35 U.S.C. § 103 as allegedly being unpatentable over Li in view of Carr, and further in view of Venkatachary. (Paper No. 4, page 14). Applicants respectfully traverse.

Li, Carr, and Venkatachary, taken alone or in combination, do not teach or suggest each and every element, limitation, and/or feature of Applicants' invention. First, claims 15-17 and 21 depend from independent claim 1, and therefore, are patentable over Li for at least the reasons provided above, in addition to the features recited therein. Specifically as discussed above with respect to claim 1, Li does not teach or suggest, for example, "selecting an index key based on a common location among said packet classification rules at a first level, such as to enable partitioning of said collection into two or more siblings at a second level, wherein the *binary value of said common location* represents a feature whereby the composition of each sibling contains packet classification rules possessing a common feature."

Additionally as discussed above, Carr does not cure the deficiencies of Li, since Carr also does not teach or suggest, for example:

> "selecting an index key based on a common location among said packet classification rules at a first level, such as to enable partitioning of said collection into two or more siblings at a second level, wherein the *binary value of said common location* represents a feature whereby the composition of each sibling contains packet classification rules possessing a common feature",

as recited in independent claim 1.

As for Venkatachary, Applicants have properly claimed the benefit of U.S.

Provisional Application No. 60/264,065, which was filed on January 26, 2001. The

provisional application predates the filing date of Venkatachary, which was filed on

November 14, 2001. Although Venkatachary claims the benefit of U.S. Provisional

Application No. 60/249,701, which was filed on November 16, 2000, the Examiner

has provided no documentary evidence that the disclosure of Provisional

Application No. 60/249,701 anticipates or renders obvious Applicants' invention.

Applicants respectfully submit that Li, Carr, and/or Venkatachary does not

teach or suggest Applicant's invention as recited in independent claim 1.

Dependent claims 15-17 and 21 depend from independent claim 1, and therefore,

are patentable over Li, Carr, and/or Venkatachary for at least the reasons stated

above, in addition to the features recited therein. As such, Applicants respectfully

request reconsideration and withdrawal of the rejection of the above claims, and

allowance thereof.

Conclusion

All of the stated grounds of objection and rejection have been properly

traversed, accommodated, or rendered moot. Applicants therefore respectfully

request that the Examiner reconsider all presently outstanding objections and

rejections and that they be withdrawn. Applicants believe that a full and complete

reply has been made to the outstanding Office Action and, as such, the present

application is in condition for allowance. If the Examiner believes, for any reason,

that personal communication will expedite prosecution of this application, the

Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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